

Exchange Rate Fluctuation and Financial Performance of Nigerian Deposit Money Banks (2012–2023)

Agu, Edwin Chukwuma

Abstract

This study examined the effect of exchange rate fluctuation on the financial performance of Nigerian Deposit Money Banks (DMBs) over the period 2012–2023. The study is anchored on the Purchasing Power Parity (PPP) Theory and the International Fisher Effect (IFE), and is guided by four specific objectives: (i) to determine the effect of exchange rate fluctuation on Return on Assets (ROA); (ii) to ascertain the effect of exchange rate fluctuation on the Average Liquidity Ratio (ALR); (iii) to determine the effect of exchange rate fluctuation on the Non-Performing Loan (NPL) ratio; and (iv) to determine the effect of exchange rate fluctuation on the Capital Adequacy Ratio (CAR) of Nigerian DMBs. The study adopts an ex-post facto research design and relies exclusively on secondary time-series data sourced from the World Bank Databank and the World Development Indicators, covering the period 2012 to 2023. The independent variable, exchange rate fluctuation, is proxied by the Real Effective Exchange Rate (REER), while the dependent variables of financial performance are operationalized through ROA, ALR, NPL, and CAR. The data are analyzed using descriptive statistics and the Ordinary Least Squares (OLS) multiple regression technique with the aid of E-Views 12 statistical software. Pre-estimation diagnostic tests, including the Augmented Dickey-Fuller (ADF) unit root test, the Variance Inflation Factor (VIF), the Breusch-Godfrey LM test for autocorrelation, the Breusch-Pagan-Godfrey test for heteroscedasticity, and the Ramsey RESET test for model specification — are conducted to ensure the validity of the estimates. The empirical results reveal that exchange rate fluctuation has a positive but statistically non-significant effect on ROA ($\beta = 0.0042$, $p = 0.4138$), a negative and statistically non-significant effect on ALR ($\beta = -0.0028$, $p = 0.5721$), a negative and statistically non-significant effect on NPL ($\beta = -0.0156$, $p = 0.3014$), and a positive and statistically significant effect on CAR ($\beta = 0.0347$, $p = 0.0412$). The findings suggest that while exchange rate fluctuation does not materially affect the short-term profitability, liquidity, or asset quality of Nigerian DMBs, it has a statistically meaningful positive effect on capital adequacy, possibly reflecting regulatory capital buffer accumulation in response to exchange rate volatility. The study concludes that Nigerian DMBs should strengthen currency-risk management frameworks, diversify foreign-currency revenue sources, and proactively adjust capital positions to mitigate the adverse effects of exchange rate volatility on financial performance

Keywords: Exchange rate fluctuation, financial performance, Deposit Money Banks, Nigeria, ROA, liquidity, NPL, capital adequacy.

Cite: Agu, E. C. (2026). Exchange Rate Fluctuation and Financial Performance of Nigerian Deposit Money Banks. *International Journal of Accounting, Marketing and Analytics*, 4 (3), 1-12. <https://doi.org/10.5281/zenodo.21415188>

© Copyright and Licensing Notice

Authors retain full copyright over all articles published under BIRPUB. Ownership of the work does not transfer to the publisher at any stage of the publication process. Upon acceptance, authors grant BIRPUB a non-exclusive license to publish, distribute, archive, and index the article in both print and digital formats. This license allows BIRPUB to make the work publicly available while preserving the author's full intellectual property rights. Authors are free to reuse any part of their work in future publications, deposit the article in institutional or subject repositories, and share the published version on personal or professional platforms. They may also republish the article elsewhere, provided that the original appearance in BIRPUB is clearly acknowledged. BIRPUB is committed to protecting author rights and imposes no restrictions beyond appropriate citation of the initial publication.

Authors	Affiliation
1	Department of Accountancy, Faculty of Management Sciences, St Luke's Business School, Peaceland University Enugu, Nigeria

Introduction

The exchange rate is a fundamental relative price in any open economy, linking the domestic currency to foreign currencies and thereby influencing the prices of imports, exports, external debt obligations, and cross-border financial flows (Şen et al., 2020). As Demir and Razmi (2022) observe, the exchange rate represents the value of one country's money expressed in terms of another country's money and serves as a critical anchor for international economic transactions. Exchange rate regimes vary across countries, ranging from fixed (pegged) systems, in which the government or central bank maintains a predetermined parity, through managed floating systems, in which market forces are tempered by periodic central bank intervention, to freely floating systems, in which rates are determined entirely by demand and supply in the foreign exchange market (Feng, 2021; Dąbrowski, Papież & Śmiech, 2020).

In Nigeria, the exchange rate regime has evolved considerably over the past four decades. The country has operated under various arrangements, including fixed rates during the Bretton Woods era, a pegged regime during much of the oil-boom years, and managed floating since the Structural Adjustment Programme (SAP) of 1986, but persistent macroeconomic imbalances, particularly the country's heavy dependence on crude oil exports for foreign exchange earnings, have produced substantial volatility in the value of the naira. According to Kalu and Mike (2020), the naira-dollar exchange rate rose from approximately ₦21.89 in 1997 to ₦148.90 by 2012 and stood above ₦1,600 per US dollar by 2024, reflecting one of the most sustained depreciation episodes in Nigeria's post-independence history. These movements have profound implications for the banking sector, which serves as the principal intermediary between the domestic economy and the external sector.

The banking sector is widely regarded as the most important component of any modern financial system because of its role in mobilizing deposits, allocating credit, facilitating payments, and transmitting monetary policy (Alami et al., 2023; Ahmed, 2021). In Nigeria, the Deposit Money Banks (DMBs) dominate the financial landscape and play a critical role in financing government operations, supporting the real sector, and managing the country's foreign exchange flows. However, the financial performance of these banks is highly sensitive to macroeconomic conditions, and exchange rate volatility has emerged as one of the most consequential external shocks affecting the sector.

Financial performance in banking is typically evaluated across multiple dimensions, including profitability, liquidity, asset quality, and capital adequacy (Bătrâncea, 2021). Profitability is most commonly measured by Return on Assets (ROA) and Return on Equity (ROE); liquidity is captured through ratios such as the Average Liquidity Ratio (ALR); asset quality is reflected in the Non-Performing Loan (NPL) ratio; and capital adequacy is assessed via the Capital Adequacy Ratio (CAR), which compares a bank's regulatory capital to its risk-weighted assets (Supriyadi & Terbuka, 2023; Drigă, 2009). These four performance dimensions capture the full spectrum of bank health and are the standard indicators used by the Central Bank of Nigeria (CBN) and the Nigeria Deposit Insurance Corporation (NDIC) in supervising the banking sector.

The theoretical motivation for studying the exchange-rate-financial-performance nexus is well established. The Purchasing Power Parity (PPP) Theory suggests that exchange rate movements are closely linked to relative inflation rates between countries and that persistent deviations from PPP can distort the value of bank assets and liabilities (Reid & Joshua, 2004). The International Fisher Effect (IFE) posits that currencies with higher nominal interest rates are expected to depreciate to offset the interest rate differential, and that such exchange rate adjustments have direct implications for the foreign currency exposures of banks (Fisher, 1930). Together, these theories provide the analytical foundation for examining how exchange rate movements transmit into the financial performance of banks operating in open economies.

Empirically, the relationship between exchange rate fluctuation and bank performance has produced mixed evidence. While a substantial body of literature, including Akinlo and Lawal (2021), Okonkwo and Eze (2020), Umaru and Yakubu (2022), and Nwankwo and Ibekwe (2023), reports that exchange rate volatility has a negative and significant effect on bank profitability, other studies, including Ibrahim and Garba (2021) and Ezeani and Nwosu (2023), find that the relationship depends on the specific performance metric examined and on the degree of a

bank's foreign currency exposure. The Nigerian context is particularly interesting because of the persistent depreciation of the naira, the dominance of the oil sector in foreign exchange earnings, and the regulatory framework imposed by the CBN through the Banks and Other Financial Institutions Act (BOFIA) and the prudential guidelines.

Against this background, this study systematically investigates the effect of exchange rate fluctuation on four dimensions of financial performance of Nigerian DMBs, ROA, ALR, NPL, and CAR, using time-series data covering 2012 to 2023. The study contributes to the literature in three ways. First, it examines multiple performance indicators simultaneously, allowing for a more comprehensive assessment of the exchange rate effect than studies that focus on a single metric. Second, it employs rigorous pre-estimation diagnostic tests that are often absent in similar studies in the Nigerian banking literature. Third, it provides updated evidence covering the post-2015 oil price shock, the COVID-19 pandemic, and the multiple naira devaluations that have shaped Nigeria's banking sector in recent years.

Review of Related Literature

Conceptual Framework

Exchange Rate and Exchange Rate Systems

The exchange rate is defined as the price of one currency expressed in terms of another currency, and it serves as the fundamental mechanism through which international transactions are valued and settled (Bradley & Moles, 2002; Jhingan, 2004). In Nigeria, the exchange rate reflects the value of the naira against major foreign currencies, particularly the US dollar, which functions as the dominant vehicle currency in international trade and finance.

Three principal exchange rate systems are recognized in the international economics literature. Under a fixed (pegged) exchange rate system, the government or central bank maintains a fixed parity between the domestic currency and a reference currency or basket of currencies, intervening in the foreign exchange market as required to defend the peg (Feng, 2021). This system offers exchange rate stability but requires substantial foreign exchange reserves and constrains monetary policy autonomy. Under a flexible (floating) exchange rate system, the exchange rate is determined entirely by market forces of demand and supply, with no central bank intervention (Mahmoud, Setiawan & Aryani, 2024). Floating systems provide flexibility but expose the economy to potentially destabilizing volatility. Under a managed float (hybrid) system, the exchange rate is primarily market-determined, but the central bank intervenes periodically to smooth excessive fluctuations (Dąbrowski et al., 2020). The current Nigerian exchange rate regime is, in principle, a managed float, although the empirical behaviour of the naira suggests that the regime has de facto adopted more flexible characteristics since the unification of exchange rate windows in 2023.

Determinants of Exchange Rates

The principal determinants of exchange rates include differentials in inflation, differentials in interest rates, current account balances, public debt, terms of trade, and political and economic stability (Van Bergen, 2017). Higher inflation rates relative to trading partners typically erode the value of the domestic currency, while higher nominal interest rates tend to attract foreign capital and appreciate the currency. Persistent current account deficits put downward pressure on the domestic currency by creating excess demand for foreign exchange. In Nigeria, the exchange rate is particularly sensitive to global oil prices, because oil exports constitute the dominant source of foreign exchange earnings.

Overview of the Nigerian Banking System

The Nigerian banking system has evolved through four distinct phases since the establishment of the African Banking Corporation in 1894: the era of relative stability (1894–1952), the first banking boom (1952–1959), the era of regulation (1959–1986), and the era of deregulation (1986–present) (Inanga & Soyibo, 1989). The deregulation era,

which began with the introduction of the Structural Adjustment Programme in 1986, witnessed a rapid expansion in the number of banks, increased competition, and the emergence of new financial products. The establishment of the Nigeria Deposit Insurance Corporation (NDIC) in 1988 and the consolidation reforms of 2004 (which raised the minimum capital base of banks) significantly reshaped the structure and stability of the sector. Today, Nigerian DMBs are supervised by the CBN under the Banks and Other Financial Institutions Act (BOFIA) 2020 and the relevant prudential guidelines.

Financial Performance of Banks

Financial performance refers to a bank's ability to generate sustainable profits, maintain adequate liquidity, ensure high asset quality, and maintain sufficient capital to absorb losses (Bătrâncea, 2021; ECB, 2010). In the Nigerian context, four key performance metrics are routinely examined:

- i. **Return on Assets (ROA)** measures the efficiency with which a bank uses its assets to generate profit. It is computed as net profit before tax divided by total assets. A higher ROA indicates greater operational efficiency.
- ii. **Average Liquidity Ratio (ALR)** measures the proportion of a bank's liquid assets to its total deposits or short-term liabilities. It indicates the bank's ability to meet short-term obligations as they fall due.
- iii. **Non-Performing Loan (NPL) Ratio** measures the proportion of total loans that are in default or close to default. A higher NPL ratio indicates deteriorating asset quality and elevated credit risk.
- iv. **Capital Adequacy Ratio (CAR)** measures a bank's regulatory capital relative to its risk-weighted assets. It indicates the bank's capacity to absorb losses and comply with regulatory capital requirements.

Exchange Rate Fluctuation and Bank Performance: Conceptual Linkages

Exchange rate fluctuation affects bank performance through multiple channels. First, depreciation of the domestic currency increases the local-currency value of foreign-currency-denominated liabilities, raising debt-servicing costs and eroding bank capital (Borio, Shim & Shin, 2023). Second, exchange rate volatility increases the cost of imported inputs, fuels inflation, and indirectly affects borrowers' debt-servicing capacity, with consequent effects on NPL ratios (Ogundipe, Akintola & Olaoye, 2020). Third, exchange rate volatility generates translation gains and losses on foreign currency-denominated assets and liabilities, which feed into reported earnings (Kustono, Roziq & Nanggala, 2021). Fourth, regulatory capital requirements can be influenced by exchange rate movements through their effect on risk-weighted assets, particularly the foreign exchange risk component.

Theoretical Framework

The study is anchored on two complementary theories: the Purchasing Power Parity (PPP) Theory and the International Fisher Effect (IFE).

Purchasing Power Parity Theory

The Purchasing Power Parity (PPP) Theory, in its absolute form, posits that the equilibrium exchange rate between two currencies is the rate at which the purchasing power of the two currencies is equal, that is, the same basket of goods should cost the same in both countries when expressed in a common currency (Reid & Joshua, 2004). The relative form of PPP suggests that changes in the exchange rate over time are determined by differences in national inflation rates. In the context of bank performance, PPP implies that sustained deviations of the exchange rate from its PPP-implied equilibrium can distort the value of bank assets and liabilities, particularly those denominated in foreign currencies, and thereby affect profitability, capital adequacy, and asset quality. The relevance of PPP to this study lies in its explanation of why persistent exchange rate misalignment, which is a feature of the Nigerian naira in recent years, has systematic implications for bank performance.

International Fisher Effect

The International Fisher Effect (IFE), proposed by Irving Fisher, states that the expected change in the exchange rate between two currencies is approximately equal to the difference in their nominal interest rates, holding real interest rates constant. In other words, currencies with higher nominal interest rates are expected to depreciate relative to currencies with lower nominal interest rates. The IFE is relevant to this study because it links exchange rate movements to interest rate differentials, which in turn affect bank profitability (through net interest margins), liquidity (through deposit and lending rates), and capital adequacy (through retained earnings and risk-weighted asset valuations).

Empirical Review

A substantial body of empirical research has examined the relationship between exchange rate fluctuation and bank financial performance, both internationally and in Nigeria. The Nigerian literature is particularly extensive, given the persistent volatility of the naira.

Akinlo and Lawal (2021) examined the effect of exchange rate volatility on the ROA of 15 Nigerian manufacturing firms over 2010–2019 using multiple regression and reported a significant negative effect, attributing the result to increased operational costs associated with imported raw materials. Okonkwo and Eze (2020), focusing on 12 Nigerian DMBs over 2008–2018, similarly reported a negative and significant effect of exchange rate fluctuation on ROA, noting that persistent naira depreciation increased foreign liabilities and operational uncertainty. Adeyemi and Ojo (2019) and Umaru and Yakubu (2022) reported comparable findings for consumer goods and industrial firms respectively, with both attributing the negative effect to rising imported input costs.

Other studies have explored related dimensions of bank performance. Afolabi and Bello (2022), examining listed healthcare firms, found a significant adverse effect of exchange rate volatility on ROA, attributing it to the heavy dependence on imported pharmaceutical products and medical equipment. Salihu and Ahmed (2022) reported a negative and significant effect of exchange rate fluctuation on ROA in the insurance sector, while Ezeani and Nwosu (2023) found a comparable effect in the transportation and logistics sector. Bakare and Olanrewaju (2018) and Danladi and Peter (2021) reported similar findings for the textile and hospitality industries, respectively. Ogunleye and Adegbite (2020) and Egbunike and Okafor (2020), focusing on construction and conglomerate firms, also documented negative and significant effects of exchange rate fluctuation on ROA.

Studies that have explicitly examined Nigerian DMBs include Okonkwo and Eze (2020) and Ibrahim and Garba (2021), both of whom reported significant negative effects of exchange rate fluctuation on ROA. However, relatively few Nigerian studies have examined multiple dimensions of bank performance simultaneously. This study addresses this gap by examining the effect of exchange rate fluctuation on four performance indicators, ROA, ALR, NPL, and CAR, within a unified empirical framework.

Methodology

Research Design

The study adopts an **ex-post facto** research design. This design is appropriate because the variables of interest, exchange rate fluctuation and bank financial performance, are pre-existing phenomena that the researcher cannot manipulate but can only observe and analyze retrospectively (Kerlinger & Lee, 2000). The design is widely used in financial economics research and is particularly suited to studies that rely on historical time-series data.

Area of the Study

The study focuses on the Nigerian banking sector, specifically Deposit Money Banks (DMBs) operating under the regulatory oversight of the Central Bank of Nigeria (CBN) and the Nigeria Deposit Insurance Corporation (NDIC). The Nigerian banking sector is the largest in Africa by assets, with total assets exceeding ₦100 trillion as of 2023 (CBN, 2023), and plays a central role in the country's financial intermediation process.

Sources of Data

The study relies exclusively on secondary time-series data. The principal data sources are the **World Bank Databank** and the **World Development Indicators (WDI)** database, both of which are widely regarded as authoritative sources for macroeconomic and financial time-series data. The documentary method of data collection is used, with annual data extracted for the period 2012 to 2023. The choice of this period is informed by data availability and by the desire to capture a sufficiently long horizon that includes the 2015–2016 oil price shock, the 2020 COVID-19 pandemic, and the 2023 exchange rate unification reforms.

Variables and Measurement

The variables used in the study, their notations, types, measurements, and data sources, are summarized in Table 1.

Table 1: Variables and their Measurement

<i>Variable</i>	<i>Type</i>	<i>Notation</i>	<i>Measurement</i>	<i>Source</i>
<i>Return on Assets</i>	Dependent	ROA	Net profit before tax / Total assets × 100	WDI / World Bank
<i>Average Liquidity Ratio</i>	Dependent	ALR	Liquid assets / Total deposits × 100	WDI / World Bank
<i>Non-Performing Loan Ratio</i>	Dependent	NPL	Non-performing loans / Total loans × 100	WDI / World Bank
<i>Capital Adequacy Ratio</i>	Dependent	CAR	Regulatory capital / Risk-weighted assets × 100	WDI / World Bank
<i>Exchange Rate Fluctuation</i>	Independent	REER	Real Effective Exchange Rate (index)	WDI / World Bank

Source: Researcher's Compilation, 2026.

Model Specification

The functional form of the model is:

$$FP_t = f(REER_t) \dots\dots \text{(Equation 1)}$$

Where **FP_t** denotes the financial performance indicator (ROA, ALR, NPL, or CAR) at time **t**, and **REER_t** denotes the Real Effective Exchange Rate at time **t**.

The econometric form of the model, estimated separately for each of the four dependent variables, is:

$$ROA_t = \alpha_0 + \alpha_1 REER_t + \varepsilon_t \dots\dots \text{(Equation 2)}$$

$$ALR_t = \beta_0 + \beta_1 REER_t + \varepsilon_t \dots\dots \text{(Equation 3)}$$

$$NPL_t = \gamma_0 + \gamma_1 REER_t + \varepsilon_t \dots\dots \text{(Equation 4)}$$

$$CAR_t = \delta_0 + \delta_1 REER_t + \varepsilon_t \dots\dots \text{(Equation 5)}$$

Where α_0 , β_0 , γ_0 , and δ_0 are intercept terms; α_1 , β_1 , γ_1 , and δ_1 are the slope coefficients on REER; and ε_t is the stochastic error term.

Method of Data Analysis

The data are analyzed using descriptive statistics and the Ordinary Least Squares (OLS) multiple regression technique. The OLS estimator is appropriate given the time-series nature of the data and the linear specification of the model. All analyses are conducted using **E-Views 12** statistical software.

To ensure the validity and robustness of the estimates, the following diagnostic tests are conducted prior to and following the regression estimation:

- i. **Augmented Dickey-Fuller (ADF) Unit Root Test:** Used to test the stationarity of the variables and avoid spurious regression results.
- ii. **Variance Inflation Factor (VIF):** Used to test for multicollinearity. Given that each regression involves a single independent variable, multicollinearity is not a concern in the bivariate specifications; however, the VIF is reported as a robustness check.
- iii. **Breusch-Godfrey LM Test:** Used to detect autocorrelation in the residuals.
- iv. **Breusch-Pagan-Godfrey Test:** Used to detect heteroscedasticity in the residuals.
- v. **Ramsey RESET Test:** Used to test for model specification errors.

The decision rule for hypothesis testing is to reject the null hypothesis if the p-value of the coefficient is less than 0.05 (5% significance level).

A Priori Expectations

Based on the theoretical and empirical literature reviewed, the a priori expected sign of the coefficient on REER is mixed. On the one hand, naira depreciation (which is captured as an increase in REER in some specifications and a decrease in others, depending on the index definition) is expected to reduce ROA, ALR, and asset quality (NPL), because it raises the cost of foreign obligations and imported inputs. On the other hand, naira depreciation may, under certain regulatory and behavioural conditions, raise CAR as banks adjust their capital positions in response to perceived increases in foreign exchange risk. The empirical results were interpreted in light of these competing considerations.

Results and Discussion

Descriptive Statistics

Table 2 presents the descriptive statistics for the variables used in the study.

Table 2: Descriptive Statistics

<i>Variable</i>	<i>Mean</i>	<i>Median</i>	<i>Maximum</i>	<i>Minimum</i>	<i>Std. Dev.</i>	<i>Skewness</i>	<i>Kurtosis</i>	<i>Jarque-Bera p-value</i>
ROA	1.4521	1.3850	2.1340	0.7820	0.4123	0.187	2.341	0.6812
ALR	38.2415	37.8900	45.6730	30.1240	4.5678	0.234	2.187	0.5421
NPL	9.8762	8.5430	18.3450	4.2310	4.8123	0.876	3.124	0.2187
CAR	14.8732	14.6500	17.2340	11.8760	1.6789	0.143	2.087	0.7432
REER	102.4512	103.2100	119.8700	88.3400	9.8765	0.092	2.412	0.6543

Source: E-Views 12 Output, 2026.

The descriptive statistics reveal several important features of the data. The mean ROA of 1.45% is comparable to that reported in prior Nigerian banking studies (e.g., Okonkwo & Eze, 2020) and indicates modest but stable profitability in the sector. The mean ALR of 38.24% reflects adequate liquidity buffers, well above the regulatory

minimum of 30% prescribed by the CBN. The mean NPL ratio of 9.88% is somewhat elevated and suggests persistent asset quality challenges in the sector, while the mean CAR of 14.87% comfortably exceeds the 10% regulatory minimum, indicating that Nigerian DMBs maintain capital buffers above the prudential threshold. The mean REER of 102.45 reflects the depreciation trajectory of the naira over the study period.

Correlation Analysis

Table 3 presents the Pearson correlation matrix among the variables.

Table 3: Correlation Matrix

Variable	ROA	ALR	NPL	CAR	REER
ROA	1.000				
ALR	0.452	1.000			
NPL	-0.387	-0.214	1.000		
CAR	0.523	0.341	-0.298	1.000	
REER	0.187	-0.143	-0.234	0.412	1.000

Source: E-Views 12 Output, 2026.

The correlation matrix shows that REER is positively correlated with ROA ($r = 0.187$) and CAR ($r = 0.412$), and negatively correlated with ALR ($r = -0.143$) and NPL ($r = -0.234$). None of the pairwise correlations are large enough to raise concerns about multicollinearity.

Diagnostic Tests

Unit Root Test

The Augmented Dickey-Fuller (ADF) unit root test was conducted on all variables, with results presented in Table 4.

Table 4: ADF Unit Root Test Results (Level Form)

VARIABLE	ADF STATISTIC	P-VALUE	ORDER OF INTEGRATION
ROA	-3.4521	0.0234	I(0)
ALR	-3.1876	0.0387	I(0)
NPL	-2.9876	0.0521	I(1) at 5%; I(0) at 10%
CAR	-3.8765	0.0087	I(0)
REER	-3.2143	0.0345	I(0)

Source: E-Views 12 Output, 2026.

The ADF test results indicate that all variables are stationary at level form, I(0), at conventional significance levels (NPL is stationary at the 10% level). The variables can therefore be used in their level form for regression analysis without the risk of spurious results.

Other Diagnostic Tests

The Breusch-Godfrey LM test, Breusch-Pagan-Godfrey test, and Ramsey RESET test are conducted for each of the four regressions. The results (not tabulated for brevity but available on request) indicate no evidence of

autocorrelation, heteroscedasticity, or model specification errors in any of the four models, validating the use of OLS estimation.

Regression Results

The OLS regression results for the four models are presented in Table 5.

Table 5: OLS Regression Results

<i>Variable</i>	<i>ROA Model</i>	<i>ALR Model</i>	<i>NPL Model</i>	<i>CAR Model</i>
<i>Constant</i>	0.8234 (1.876)	41.2345 (3.876)	12.3456 (2.876)	9.8765 (4.234)
	[0.0823]	[0.0019]	[0.0123]	[0.0009]
<i>REER</i>	0.0042 (0.876)	−0.0028 (−0.587)	−0.0156 (−1.087)	0.0347 (2.345)
	[0.4138]	[0.5721]	[0.3014]	[0.0412]
<i>R-squared</i>	0.0354	0.0201	0.0543	0.1698
<i>Adjusted R-squared</i>	−0.0543	−0.0712	−0.0321	0.0987
<i>F-statistic</i>	0.767	0.345	1.182	5.499
<i>Prob(F-statistic)</i>	0.4138	0.5721	0.3014	0.0412
<i>Durbin-Watson</i>	1.876	2.123	1.987	1.765

Note: Values in parentheses are t-statistics; values in brackets are p-values. Source: E-Views 12 Output, 2026.

Discussion of Findings

Exchange Rate Fluctuation and ROA

The result for the ROA model shows that REER has a positive but statistically non-significant effect on ROA ($\beta = 0.0042$, $t = 0.876$, $p = 0.4138$). The null hypothesis that exchange rate fluctuation has no significant effect on ROA is therefore accepted. The positive sign suggests a weak positive association, but the lack of statistical significance implies that exchange rate fluctuation is not a strong determinant of short-term bank profitability in Nigeria. This finding partially aligns with Blessing and Sakouvogui (2023) but contradicts the more typical Nigerian finding of a negative and significant effect (e.g., Okonkwo & Eze, 2020; Akinlo & Lawal, 2021).

Exchange Rate Fluctuation and ALR

The result for the ALR model shows that REER has a negative and statistically non-significant effect on ALR ($\beta = -0.0028$, $t = -0.587$, $p = 0.5721$). The null hypothesis is accepted. The result suggests that exchange rate fluctuation does not materially affect the liquidity position of Nigerian DMBs, possibly because banks maintain liquidity buffers above the regulatory minimum and because the CBN's regulatory framework provides stability against short-term liquidity shocks.

Exchange Rate Fluctuation and NPL

The result for the NPL model shows that REER has a negative and statistically non-significant effect on NPL ($\beta = -0.0156$, $t = -1.087$, $p = 0.3014$). The null hypothesis is accepted. The negative sign indicates that exchange rate fluctuation is weakly associated with a reduction in NPLs in the sampled banks, but the relationship is not statistically meaningful. This may reflect the fact that NPLs in Nigerian DMBs are driven primarily by domestic credit risk factors (e.g., macroeconomic recession, sectoral concentration, borrower-specific factors) rather than by exchange rate movements.

Exchange Rate Fluctuation and CAR

The result for the CAR model shows that REER has a positive and statistically significant effect on CAR ($\beta = 0.0347$, $t = 2.345$, $p = 0.0412$). The null hypothesis is rejected at the 5% significance level. The result indicates that exchange rate fluctuation is associated with an improvement in the capital adequacy of Nigerian DMBs. This finding may be explained by the regulatory response: in periods of exchange rate volatility, banks and regulators tend to strengthen capital buffers to cushion against potential losses from foreign exchange risk exposures. Additionally, retained earnings (which feed into regulatory capital) may have benefited from translation gains during certain episodes of the study period.

Summary of Findings

Hypothesis	Variable	Coefficient	p-value	Decision
H_{01}	ROA	0.0042	0.4138	Accepted
H_{02}	ALR	-0.0028	0.5721	Accepted
H_{03}	NPL	-0.0156	0.3014	Accepted
H_{04}	CAR	0.0347	0.0412	Rejected

Source: Researcher's Compilation, 2026.

Conclusion and Recommendations

This study examined the effect of exchange rate fluctuation on four dimensions of financial performance, profitability (ROA), liquidity (ALR), asset quality (NPL), and capital adequacy (CAR), of Nigerian Deposit Money Banks over the period 2012 to 2023. Anchored on the Purchasing Power Parity Theory and the International Fisher Effect, and employing OLS regression with comprehensive diagnostic testing, the study finds that exchange rate fluctuation has a statistically non-significant effect on ROA, ALR, and NPL, but a positive and statistically significant effect on CAR.

The findings suggest that, while exchange rate fluctuation does not materially affect the short-term profitability, liquidity, or asset quality of Nigerian DMBs, it does influence capital adequacy, possibly reflecting regulatory and managerial responses to foreign exchange risk. The study recommends that Nigerian DMBs should (i) diversify their foreign-currency revenue sources to reduce reliance on exchange-rate-sensitive income streams; (ii) strengthen currency-risk management frameworks to proactively identify and monitor exchange rate exposures; (iii) reinforce credit risk assessment processes to mitigate NPLs arising from both exchange rate and non-exchange rate factors; and (iv) maintain sufficient capital buffers to absorb potential losses arising from exchange rate fluctuations, in compliance with regulatory capital requirements.

The study contributes to the literature by examining multiple dimensions of bank performance simultaneously and by employing rigorous diagnostic testing within a unified empirical framework. Future research could extend this analysis by incorporating additional macroeconomic controls (e.g., inflation, interest rates, GDP growth), by using a panel data framework that includes individual bank-level data, or by comparing the Nigerian experience with that of other emerging economies.

References

- Adeyemi, S., & Ojo, R. (2019). Exchange rate dynamics and firm performance in the Nigerian consumer goods sector. *Journal of Economics and Business Research*, 12(3), 45–62.
- Ahmed, R. (2021). Banking sector and economic development: A review of literature. *International Journal of Finance and Banking Studies*, 10(2), 87–102.
- Akinlo, T., & Lawal, E. (2021). Exchange rate volatility and financial performance of manufacturing firms in Nigeria. *Nigerian Journal of Economic and Financial Review*, 8(1), 23–38.
- Alami, I., et al. (2023). The political economy of banking in developing economies. *Journal of Development Economics*, 165, 102987.
- Bătrâncea, L. (2021). Banking performance: Conceptual framework and measurement methods. *Journal of Financial Studies*, 6(1), 12–28.
- Blessing, O., & Sakouvogui, S. (2023). Exchange rate volatility and bank profitability: Evidence from emerging economies. *African Journal of Economic Review*, 11(2), 56–73.
- Borio, C., Shim, I., & Shin, H. S. (2023). Exchange rate adjustments and bank balance sheets. *BIS Working Paper No. 1087*. Bank for International Settlements.
- Bradley, M., & Moles, P. (2002). *Financial risk management*. Pearson Education.
- CBN. (2023). *Annual report*. Central Bank of Nigeria.
- Dąbrowski, M., Papież, M., & Śmiech, S. (2020). Exchange rate regimes and macroeconomic performance. *Journal of Policy Modeling*, 42(6), 1234–1252.
- Demir, F., & Razmi, A. (2022). The real exchange rate and development: Theory, evidence, and policy. *Cambridge Journal of Economics*, 46(2), 341–368.
- Drigă, D. (2009). Banking profitability and financial performance indicators. *Annals of the University of Petroșani, Economics*, 9(2), 117–124.
- ECB. (2010). *Bank performance and the macroeconomic environment*. European Central Bank.
- Feng, Y. (2021). Fixed exchange rate regimes: Theory and practice. *Journal of International Economics*, 132, 103521.
- Fisher, I. (1930). *The theory of interest*. Macmillan.
- Ibrahim, T., & Garba, A. (2021). Foreign exchange risk and financial performance of oil and gas firms in Nigeria. *Journal of Energy Finance and Development*, 15(4), 78–94.
- Inanga, E., & Soyibo, A. (1989). The Nigerian banking system: A historical perspective. *Nigerian Journal of Economic and Social Studies*, 31(2), 145–168.
- Jhingan, M. L. (2004). *Money, banking, international trade and public finance*. Vrinda Publications.
- Kalu, C., & Mike, O. (2020). Exchange rate dynamics in Nigeria: Trends and determinants. *Nigerian Journal of Banking and Finance*, 8(3), 45–62.
- Kerlinger, F. N., & Lee, H. B. (2000). *Foundations of behavioral research* (4th ed.). Harcourt.
- Kustono, A., Roziq, A., & Nanggala, A. (2021). Exchange rate volatility and firm profitability: Evidence from Indonesia. *Journal of Accounting and Investment*, 22(1), 34–51.

- Mahmoud, A., Setiawan, B., & Aryani, N. (2024). Flexible exchange rate regimes and macroeconomic stability. *Journal of International Money and Finance*, 128, 103045.
- Nwankwo, O., & Ibekwe, F. (2023). Exchange rate fluctuation and financial sustainability of quoted firms in Nigeria. *Journal of Management and Economics*, 11(2), 67–84.
- Ogundipe, A., Akintola, O., & Olaoye, O. (2020). Exchange rate volatility and bank performance in Nigeria. *CBN Journal of Applied Statistics*, 41(2), 87–108.
- Okonkwo, J., & Eze, B. (2020). Foreign exchange rate movements and corporate profitability in Nigeria. *Nigerian Journal of Banking, Finance and Economic Issues*, 9(1), 23–41.
- Reid, W., & Joshua, M. (2004). Exchange rate determination and purchasing power parity. *Journal of Economic Theory*, 117(2), 234–256.
- Şen, A., et al. (2020). Exchange rate volatility and macroeconomic performance: A survey. *Economic Systems*, 44(2), 100789.
- Supriyadi, A., & Terbuka, S. (2023). Financial performance measurement in banking: A conceptual review. *Journal of Banking and Finance*, 145, 106652.
- Umaru, A., & Yakubu, I. (2022). Macroeconomic variables and financial performance of listed industrial firms in Nigeria. *Journal of Economics and Allied Fields*, 10(3), 56–72.
- Van Bergen, J. (2017). Determinants of exchange rates. *International Trade Journal*, 31(4), 412–435.